ENERGY POLICY UPDATE

December 16, 2014

Governor's Office of Energy Policy

The Energy Policy Update Electronic Newsletter is published by the Arizona Governor's Office Of Energy Policy and is provided free of charge to the public. It contains verbatim excerpts from international, domestic energy, and environment-related publications that are reviewed by Community Outreach Personnel. For inquiries, call 602-771-1143 or toll free to 800-352-5499. To register to receive this newsletter electronically or to unsubscribe, email Gloria Castro.

UPCOMING WEBINARS

- ENERGY STAR Webinars
- U.S. Dept. of Energy Tribal Renewable Energy Webinar Series for 2014
- NEW! Transitioning to NERC CIPv5: What Does it Mean for Electric Utilities
  Wed., January 28, 2015
  10:00am - 11:00am PT /
  1:00pm - 2:00pm ET Click here to register.
  Webinar Partners: EnergySec and MetricStream

2015 UPCOMING EVENTS

NAHB Int'l. Builders' Show
Jan. 20-22 Las Vegas, NV

ASHRAE Winter Conference
Jan. 24-28 Chicago, IL

Getting to ZERO Nat'l. Forum
Feb. 1-3 Washington, DC

NASEO Energy Policy Outlook Conference 2015
Feb. 3-6 Washington, DC

Solar Power Generation USA
Feb. 4-5 San Diego, CA

Energy, Utility & Environment Conference (EUEC) 2015
Feb. 16-18 San Diego, CA

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ARIZONA-RELATED

Arizona Gas Prices Continue To Drop

[Arizona Republic, Dec. 15] Phoenix prices fell 9.6 cents last week, averaging $2.42 a gallon, beating out the national average of $2.57 a gallon, according to Gasbuddy.com. Arizona gas prices continued to fall Monday, with some gas stations charging as low as $1.99 a gallon and drawing crowds of customers. Average prices at the pump in Phoenix for regular unleaded have slid about 35 cents from a month ago and are down roughly 70 cents from $3.10 at this time next year, according to AAA Arizona.

Energy Chief: Be Mindful of Customers' Investment in Solar

[Arizona Republic, Dec. 12] U.S. Energy Secretary Ernest Moniz said that utilities need to be aware of the "sunk costs" that homeowners have invested in solar power as electric companies aim to increase their rates. Salt River Project is the latest utility to propose significantly higher charges for customers who generate a portion of their own electricity with rooftop solar. The company suggests changing the rate structure on solar customers so that they pay about $50 more a month, which SRP officials say is necessary to cover their use of the power grid at times when they are not generating their own power. SRP has about 12,000 customers who already have solar, and the utility is proposing to keep them under the current rate structure for 10 years before imposing the new fees on them. A final decision is expected from SRP Feb. 26. Moniz, in Arizona for a visit to Arizona State University, was hesitant to wade into any particular utility's rate decisions. But he did say that as utilities restructure their rates to accommodate solar, they need to be aware of the customers who were early adopters of solar who are facing rate changes.

First Solar Targets Residential Solar Customers

[Arizona Republic, Dec. 10] Tempe-based First Solar Inc. is teaming up with Colorado's Clean Energy Collective to develop community solar projects that will allow people to use solar without putting panels on their roofs. For First Solar, the deal marks its first major foray into the residential solar market. Community solar projects are large solar plants that allow customers to purchase blocks of the electricity they produce. They take advantage of the cheaper cost of

Sustainability Solutions Festival
Feb. 16-21

GreenBiz 2015
Feb. 17-19 Phoenix, AZ

GreenBiz Forum 2015
Feb. 17-19 Phoenix, AZ

2015 Sustainability Solution Festival
Feb. 17-22 Phoenix, AZ

Natural Gas Vehicles + Infrastructure
Mar. 10-11 Phoenix, AZ

Solar Summit 2015
Apr. 14-15 Phoenix, AZ

CxENERGY 2015 Conference & Expo
Apr. 27-30 Las Vegas, NV

Alternative Clean Transportation (ACT) Expo
May 4-7 Dallas, TX

Solar Power Generation Mexico
May 19-20
World Trade Center, Mexico

Energy Efficiency Finance Forum
May 31-Jun. 2 San Francisco, CA

Green Building Lecture Series
Granite Reef Senior Center
Scottsdale, AZ

ASHRAE Annual Conference
Jun. 27-Jul.1 Atlanta, GA

RES Las Vegas
Mar. 9-12 Las Vegas, NV

ACEEE Summer Study on Energy Efficiency in Industry
Aug. 4-6 Buffalo, NY

ACEEE National Conference on Energy Efficiency as a Resource
Sep. 20-22 Little Rock, AR

World Energy Engineering Congress (WEEC)
Sep. 30 – Oct. 2 2015
Orlando, FL

ASU Sustainability Series Events

Green Building Lecture Series
Scottsdale, AZ

building large plants compared with rooftop-solar arrays. "We structured the agreement with Clean Energy Collective that will hopefully enable rapid growth for both companies," First Solar CEO James Hughes said. "We have been a proponent of community solar as the best-in-class solution for customers for quite a while. It is beginning to take hold in the market in the way we thought it would ultimately." Community solar projects offer a way for First Solar to target homeowners while sticking to its core business of building large solar plants, not small rooftop arrays. First Solar's thin panels are inexpensive to make but also less efficient at converting sunlight to electricity. Because of their low efficiency, thin-film panels generally are not used on rooftops because they require many more panels to generate the equivalent amount of electricity available from traditional silicon solar products. Clean Energy Collective said it developed the first community solar project in the country in 2010 in Colorado. It has worked on 40 community solar projects with 18 utilities across 8 states.

MAG Feted in National Report for Innovative Efforts

[Phoenix Business Journal, Dec. 10] Maricopa Association of Governments is now known as a national leader in the quest to reduce traffic congestion and commute times. Its efforts are cited in a new national report from Transportation for America that is distributed to board members of metropolitan planning organizations. The book showcases best practices of municipal planning organizations across the country in "The Innovative MPO." Identified as a "national leader" in the guidebook and called out as a model for other MPOs to follow, MAG is praised for its modeling tools. "MAG is a leader in sharing data and transportation modeling information with the public," the report said. The region is cited as a national model in planning for economic competitiveness, with the report noting the creation of the MAG Economic Development Committee as a best practice and praising MAG for "advancing strategies to ensure that future growth better serves the region's economic and environmental needs."

State Settles 'Smart' Meter Debate

[Arizona Republic, Dec. 13] Arizona Public Service wants your meter reader to go the way of the milk man and the rotary dial phone. But the wireless technology it is using has at least 20,000 customers up in arms. The utility's solution? If customers still want someone to come to their house and read their meter in person, they'll have to pay for it. On Friday, regulators came up with a compromise that left no one happy. Customers who don't want wireless "smart" meters will have to pay for the privilege: a $50 fee and $5 a month. But the amount is far less than the utility had sought. About 20,000 APS customers have refused to allow the company to install smart meters on their homes. More than 1.1 million have been installed since the company began phasing out analog meters in 2006. Smart meters transmit customers' electricity usage to the utility with radio signals, and dozens of opponents spent hours testifying before the Arizona Corporation Commission Friday, hoping to convince the five regulators the meters are unsafe. "They are microwave weaponry," said Scottsdale resident Floris Freshman, who wore a bicycle helmet covered in tin foil and patterned cloth at the hearing. Freshman said she suffered a head injury long ago and is extra sensitive to the meters' signals, and the helmet seems to help protect her from the unwanted exposure to radio frequencies. Smart meter opponents complain of headaches, sleeplessness and other health concerns from the meters, which use wireless signals to transmit data. Many said they were concerned that even if they opted to refuse a smart meter, they could not avoid the radio frequencies emitted by their neighbors' meters, not to mention the higher exposure for people in apartments or other dwellings where several meters can be clustered in one location. The meter opponents brought in an expert, Martin Blank, a retired associate professor from the Columbia University Department of Physiology and Cellular Biophysics, who has written a book on the subject. Blank suggested the possible health effects from the meters were not worth the benefits.

SW Gas Customers To See Small Bill Credits Next Year

[Arizona Daily Star, Dec. 12] About a million Southwest Gas customers in Arizona will see small credits on their bills starting in January, after a regulatory surcharge was reset by the Arizona Corporation Commission. The credits, which will amount to about 55 cents a month or $6.64 annually for the average residential customer, are intended to reimburse ratepayers for $11.6 million Southwest Gas overcollected in 2013 through a so-called “decoupling” charge. The billing mechanism — known as the “Energy Efficiency Enabling Provision” — is designed to allow Southwest Gas to recover its authorized fixed costs, regardless of its level of energy sales — essentially decoupling rates from sales, the Corporation Commission said. Under of a state mandate that investor-owned utilities achieve energy savings of 22 percent by 2020, Southwest Gas offers residential ratepayers rebates for solar hot water systems and other rebates to businesses and builders for efficiency improvements. The idea behind decoupling is that it gives utilities the incentive to push energy-efficiency programs that can hold down rates in the long run — even though such efforts may drive down energy sales. The gas company’s decoupling rate is

reviewed on an annual basis and can result in billing credits when a utility collects more than its state-authorized revenues, as Southwest Gas did in 2013.

Sustainability Solutions Festival Aims To Reimagine Our World

[ASU News, Dec. 4] ASU Walton Sustainability Solutions Initiatives welcome the GreenBiz Forum and The Sustainability Consortium as partners for a weeklong series of sustainability events in Phoenix. The eyes, ideas and imagination of the sustainability world will turn to Arizona in February as Arizona State University hosts the second annual Sustainability Solutions Festival at venues across the greater Phoenix area. Themed "(re)imagine your world," the Sustainability Solutions Festival is convening a series of events, Feb. 16-21, that are targeted at a wide variety of audiences – from families and the ASU community to film buffs and leaders of industry. "Our charter states that ASU assumes fundamental responsibility for the economic, social and overall health of the community it serves. Hosting the Sustainability Solutions Festival to highlight innovative ideas and technologies is an example of our institutional commitment to our global community," said ASU President Michael M. Crow. Featured partners for the Festival are GreenBiz Group and The Sustainability Consortium, along with additional partners at the city of Phoenix, Arizona Science Center and the Arizona SciTech Festival.

TEP Buys Gas-Fired Plant To Reduce Coal Reliance

[Arizona Daily Star, Dec. 10] Tucson Electric Power Co. has finalized the planned purchase of a gas-fired power plant in Gila Bend, in a key move to cut its reliance on coal. In a deal announced Wednesday, TEP and sister utility UNS Electric Inc. acquired the 550-MW Gila River Power Station Power Block 3 from Gila River Power LLC for $219 million. TEP will control 413 MW of the plant's output, while UNS Electric, which serves Santa Cruz and Mohave Counties, will own the remaining energy. Gila River Power Block 3, completed in 2003, features combined cycle technology that improves fuel efficiency by capturing waste heat and using it to help generate additional electricity, TEP said. "This acquisition contributes to an evolving resource portfolio that will continue to provide reliable, affordable and sustainable energy for our customers for many years to come," David Hutchens, TEP's president and CEO, said in a news release. TEP and UNS are subsidiaries of UNS Energy Corp., which was acquired in August by Canadian utility operator Fortis Inc. Eyeing long-term costs and risks driven by new and potential environmental mandates on coal-fired power plants, TEP is planning to reduce its overall coal capacity by approximately 490 MW, or about 32 percent, by 2018.

TEP's 'Rent-A-Roof' Would Offer Cheap Solar Power for Homes

[KVOA.com, Dec. 1] TUCSON - Arizona's most abundant natural resource could arguably be the sun. Tucson Electric Power wants to start using more of it by enlisting homeowners to lend it their rooftops, potentially taking business away from smaller solar companies. The project is still on the drawing board, but it may be a reality in the next couple of months. To be part of this hypothetical program, a homeowner would be asked for a $250 installation fee. On the other hand, buying solar panels yourself could cost tens of thousands of dollars. Homeowners wouldn't own TEP's system, but they would see some of its benefits. "It's not like they will be getting free solar, they will be paying for it in their bill," said TEP Spokesperson Joe Barrios. Once the panels are installed, the homeowner's current electric rates would be locked in for the next 25 years. The power generated from the roof would be fed back into the grid.

UA Gets $20 Million Grant Toward Giant Telescope

[Arizona Republic, Dec., 15] University of Arizona astronomers are closer to having their own high-powered window to the universe. A Scottsdale high-tech entrepreneur on Monday donated $20 million toward the Giant Magellan Telescope, which is scheduled to be completed in 2021 in Chile. Richard F. Caris, founder and chairman of Interface Inc., has donated more than $2 million in the past toward other university astronomy projects. Interface specializes in high-tech equipment used in aerospace, medical, automotive and other industries. The donation will go toward the university's commitment to raise $60 million for the Giant Magellan project. The university's Steward Observatory Mirror Lab also is manufacturing the giant mirrors for the 25-meter telescope. Partnership in Giant Magellan ensures that UA astronomers will have observation time on the telescope, which will have 10 times the resolution of NASA's Hubble Space Telescope.

WIFA Helping Communities Convert to Solar

[Eastern Arizona Courier, Dec. 2] TUCSON — Five rural cities in Arizona are being powered by solar, thanks to loans from the state's Water Infrastructure Finance Authority. Another three cities will be considered for low-interest authority loans to install solar in parts of their cities as well, all in an effort to support a more sustainable society while reducing electric bills. Susan Craig, the authority's communication director, said that over the past year, five of the nine loans it provided

went to rural areas in Arizona. Two of the most recent projects were started in Bisbee and Douglas. “(Arizona) is an ideal environment because we have so much sun, and so it makes sense to take advantage of that opportunity to get your energy from solar,” said Melanie Ford, technical program supervisor. “It works very well here in our sunny environment, and it’s also very cost effective.” The authority is an independent state agency that works with municipalities to improve their drinking water, wastewater, wastewater reclamation and other water quality facilities and projects. The agency offers below-market interest rates on its loans.

ALTERNATIVE ENERGY & EFFICIENCY

Big Solar Step: Super-Efficient System Sets Record

[Yahoo News, Dec. 16] A new world record is making the future of solar energy look pretty bright. Researchers in Australia recently developed a solar energy system that can convert more than 40 percent of the sunlight that hits it into electricity — the highest efficiency ever reported for a commercially available photovoltaic system. The technology first achieved the record-breaking efficiency in outdoor tests in Sydney, Australia, and later at an outdoor test facility operated by the National Renewable Energy Laboratory (NREL) in Golden, Colorado, the primary lab for renewable energy and energy efficiency research in the United States. Martin Green, a professor at the University of New South Wales (UNSW) and director of the Australian Centre for Advanced Photovoltaics, led the research group that built the new energy system. This wasn't the first time Green and his team broke a world record for solar energy efficiency. In May 2011, the UNSW team built a crystalline silicon solar cell with an efficiency of 19.3 percent, beating the previous efficiency record, set by silicon cells, of 18.9 percent. A month later, the researchers built a slightly better cell, which had an efficiency of 19.4 percent. More than two decades earlier, in 1989, Green and his colleagues created an entire photovoltaic system that could convert sunlight to electricity at an efficiency of more than 20 percent. To double their previous efficiency record for photovoltaic systems, the UNSW team's recent efforts used commercially available solar cells, combining them with optical filters that trap wavelengths of light the average solar cell can't capture, according to a statement. This method, known generally as concentrator photovoltaics (CPV), is an emerging technology in the solar sector, one that is usually associated with high production costs and advanced applications, such as space exploration

Copenhagen Lighting the Way to Greener, More Efficient Cities

[New York Times, Dec. 8] COPENHAGEN — On a busy road in the center of town here, a string of green lights embedded in the bike path — the “Green Wave” — flashes on, helping cyclists avoid red traffic lights. On a main artery into the city, truck drivers can see on smartphones when the next light will change. And in a nearby suburb, new LED streetlights brighten only as vehicles approach, dimming once they pass. Aimed at saving money, cutting the use of fossil fuels and easing mobility, the installations are part of a growing wireless network of streetlamps and sensors that officials hope will help this city of roughly 1.2 million meet its ambitious goal of becoming the world’s first carbon-neutral capital by 2025. Eventually, the network will serve other functions, like alerting the sanitation department to empty the trash cans and informing bikers of the quietest or fastest route to their destinations. It’s all made possible through an array of sensors embedded in the light fixtures that collect and feed data into software. The system, still in its early stages, has put Copenhagen on the leading edge of a global race to use public outdoor lighting as the backbone of a vast sensory network capable of coordinating a raft of functions and services: whether easing traffic congestion, better predicting where to salt before a snowstorm or, to the alarm of privacy advocates, picking up on suspicious behavior on a busy street corner. Cities worldwide are expected to replace 50 million aging fixtures with LEDs over the next three years, with roughly half of those in Europe. Some are mainly interested in switching from outmoded technologies to one that uses less energy and can last for decades. But many others want to take full advantage of the LED’s electronics, which are more conducive to wireless communication than other types of lighting.

NatGasCar Gets EPA Nod for CNG Transit Connect

[Green Fleet Magazine, Dec. 12] NatGasCar has received Environmental Protection Agency (EPA) certification to produce compressed natural gas (CNG) versions of the 2014 and 2015 Ford Transit Connect with a 2.5L bi-fuel engine system, the natural gas vehicle modifier announced. CNG vehicle conversions and parts sales will take place at NatGasCar's new 50,000 square-foot facility, at the Cleveland Industrial Innovation Center campus. The EPA Certificates of Conformity will include the 2014 and 2015 Transit Connect light duty van for passenger and cargo applications. NatGasCar offers a turn-key CNG solution for this vehicle platform and other EPA-certified OEM platforms, according to NatGasCar. The modifier is pursuing EPA certifications for CNG versions of the 2015 5.0L Ford F-150 light duty truck with multiple cab and bed designs.

Self-Learning Building Management System Used in 8 Buildings

[Energy Manager Today, Dec. 11] An Italian company Selex ES has worked with Columbia University and New York City-based Rudin Management to create a self-learning building and energy management system – Digital Building Operating System (Di-BOSS). John Gilbert, chief operating officer and EVP with Rudin Management, said DiBOSS is installed in eight of Rudin's buildings, totaling roughly six million square feet. Gilbert said the self-learning building management system is saving the company from $.50 to $1.00 per square foot, and the payback ranges from seven to 12 months. DiBOSS uses machine-learning algorithms to forecast how the building should be operated under specific conditions. DiBOSS provides real-time continuous feedback from all subsystems in a building – power, HVAC, ventilation, lighting, security and elevators as well as weather data – while tracking building occupancy. This information gives building managers data to improve operating efficiency.

ENERGY/GENERAL

Coal Demand Growth To Slow in Next Five Years on China, IEA Says

[Bloomberg, Dec. 15] Global coal demand growth will slow in the five years through 2019 as China, the world's biggest consumer of the fuel, takes steps to cut energy intensity and diversify supply, according to the International Energy Agency. Coal use will increase by 2.1 percent a year through 2019 to 6.5 billion metric tons of coal equivalent, less than the 2.3 percent growth predicted last year for the five years through 2018, the Paris-based agency said in its Medium-Term Coal Market Report. Demand growth of 2.4 percent in 2013 was greater than the increase for oil and natural gas, consolidating coal's position as the second-largest energy source behind oil, it said. Asian nations including China and India will be the main engines of growth in the period to 2019, offsetting declines in coal consumption in Europe and the U.S., where regulations capping emissions of greenhouse gases are shutting coal-fired power plants, the IEA said. India is forecast to pass the U.S. as the world's second-biggest coal user by 2019.

Department of Energy Issues Final $12.5 Billion Advanced Nuclear Energy Loan Guarantee Solicitation

[Energy.gov, Dec. 10] WASHINGTON D.C. — Today, the Department of Energy issued the Advanced Nuclear Energy Projects loan guarantee solicitation, which provides as much as $12.5 billion to support innovative nuclear energy projects as a part of the Administration's all-of-the-above energy strategy. With the issuance of this solicitation today, the Department's Loan Programs Office (LPO) now has open solicitations in four areas, also including the $8 billion Advanced Fossil Energy Projects Solicitation, the $4 billion Renewable Energy and Efficient Energy Projects Solicitation, and the $16 billion Advanced Technology Vehicle Manufacturing (ATVM) loan program. "With $40 billion of loan guarantee authority available to advance our all-of-the-above energy strategy, the Department's Loan Programs Office has an opportunity to replicate its past successes, supporting innovative clean energy technologies that bring the U.S. closer to a low-carbon future," said Secretary Ernest Moniz. "This solicitation will help the U.S. build the next generation of safe and secure nuclear energy projects by providing the critical financing needed for innovations that have not been widely deployed at commercial scale in this country." Authorized by Title XVII of the Energy Policy Act of 2005, the Advanced Nuclear Energy Projects Solicitation would provide loan guarantees to support the construction of innovative nuclear energy and front-end nuclear projects in the U.S. that reduce, avoid, or sequester greenhouse gas emissions. While any project that meets the eligibility requirements may apply, the Department has identified four key technology areas of interest in the solicitation: advanced nuclear reactors, small modular reactors, uprates and upgrades at existing facilities, and front-end nuclear projects.

Global Energy Demand To Rise 35 Pct by 2040, Stabler Emissions-Exxon

[Reuters, Dec. 9] HOUSTON – Global energy demand should rise some 35 percent through 2040 as the middle class expands in developing countries and supplies shift to lower-carbon fuels that may allow for lower emissions, Exxon Mobil Corp said on Tuesday in its annual outlook. Exxon, the world's largest publicly traded oil company, said that without efficiency and technology gains overall energy demand would grow by 140 percent. Though the global population is expected to rise to about 9 billion in 2040 from around 7 billion currently, energy demand and emissions are already starting to fall in developed countries thanks to greater efficiency, the company said. That points to slower growth in emissions and an eventual leveling off overall. "We expect global energy-related CO2 emissions will rise by about 25 percent from 2010 to 2030 and then decline approximately 5 percent to 2040," the company said. While that 25 percent rise is considered significant, it would be about half the level of emissions growth seen from 1980 to 2010.

Mexico's Energy Reforms Could Get Financial Boost from China

[Energy Manager Today, Dec. 9] Mexico is very much looking forward to what it expects will be tremendous benefits from its energy reform legislation and the steps it is taking to promote private investment in its energy sector. Because of a large loan to Pemex, Mexico's state-owned oil company, China is certain to be a part of expected ongoing reforms in Mexico's energy industry. In August, Mexican President Enrique Peña Nieto signed a significant reform package affecting the country's oil, gas and electric power industry. As a result of the reform legislation, the Pemex monopoly of the last roughly 70 years is over. The reform is expected to generate more than two million jobs and boost the country's GDP. As reported in *Shanghai Daily*, Ruben Camarillo Ortega, a legislator and secretary of the group that developed the reform package, explained: "China's 2013 loan to Pemex for $1 billion guarantees China a seat in at Mexico's reform table. The loan, from the China Development Bank and the OCBC, guarantees that China's CNOOC gets a piece of the action in terms of exploration and production. China is a net importer of oil and its firms are rapidly obtaining access and assets across the world. Until now, China has had little access to Mexico. Now it is the first to contribute hard cash," he told the newspaper.

Oil Prices Slump Further After IEA Cuts Forecast

[Associated Press, Dec. 12] NEW YORK — The rout in oil prices advanced Friday after the International Energy Agency lowered its forecast for global oil demand next year. In its monthly oil report, the agency said global oil demand in 2015 will grow by 900,000 barrels a day — 230,000 less than previously forecast — to 93.3 million. "While demand growth is still expected to gain momentum in 2015 from 2014, the acceleration is now looking more modest than previously foreseen, in line with the ever-more tentative pace of the global economic recovery," the IEA said. The benchmark U.S. oil price tumbled more than 3 percent, at one point dropping to $57.34, the lowest intraday price since May 13, 2009, when the global economy was still in recession. Around midday in New York, it was down $2.063, or 3.4 percent, at $57.90. Brent, the international standard, was down $1.72, or 2.7 percent, at $61.96. The IEA said several years of record high prices have "induced the root cause" of the rout in oil prices in recent months. Production in countries outside of OPEC, such as the U.S., has surged to its highest growth ever while the growth in demand is at five-year lows. The fall in oil prices gathered pace in late November when OPEC left its output target unchanged. The agency also dampened expectations that the fall in oil prices will automatically be a boon for the global economy.

Why Oil Is Down by Half, What It Means for You

[Associated Press, Dec. 15] NEW YORK — The price of oil has fallen by nearly half in just six months, a surprising and steep plunge that has consumers cheering, producers howling and economists wringing their hands over whether this is a good or bad thing. The price of a barrel of oil is just under $56, down from a summer high of $107, and lower than at any time since the U.S. was still in recession in the spring of 2009. So what's going on? A global imbalance of supply and demand that is rippling across the world economy, for better and worse. SUPPLIES GO BOOM - Years of high oil prices, interrupted briefly by the recession, inspired drillers around the world to scour the earth's crust for more oil. They found it. Since 2008 oil companies in the U.S., for example, have increased production by 70 percent, or 3.5 million barrels of oil per day. To put that in perspective, that increase alone is more than the production of any OPEC member other than Saudi Arabia. As U.S. production was ramping up, turmoil in the Middle East and North Africa reduced supplies from Libya, Iran and elsewhere. A balance was struck: Increasing supplies from outside of OPEC and from Iraq's recovering oil industry helped meet rising demand around the world as other OPEC supplies waivered. But now those OPEC supplies look more certain despite continuing turmoil, and those non-OPEC supplies have swamped the market. OPEC estimated last week that the world would need 28.9 million barrels of its oil per day next year, the lowest in more than a decade. At the same time, OPEC countries plan to produce 30 million barrels of oil per day next year. That supply surplus is sending global prices lower. DEMAND GOES BUST - Global demand is still expected to grow next year, but by far less than many thought earlier this year. The economies of China, Japan and Western Europe — the top oil consumers after the United States — all appear to be weakening. Oil demand falls when economic growth stalls. The U.S. is still the world's largest consumer, but more fuel-efficient cars and changing demographics mean demand for oil and gasoline is not increasing. The Energy Department predicts a slight decrease in gasoline demand next year even though the price is expected to be sharply lower and the economy is expected to grow.

INDUSTRIES AND TECHNOLOGIES

A Coal Plant That Buries Its Greenhouse Gases

The first commercial power plant to use carbon capture and sequestration shows the potential of

a crucial technology.
[MIT Tech Review] Boundary dam, a power plant in Estevan, Saskatchewan, is the first commercial coal-fired plant to capture carbon dioxide from its emissions, compress the gas, and bury it underground. The plant demonstrates that so-called carbon capture and storage (CCS) can work at a large scale—a crucial achievement given that CCS could play a significant role worldwide in reducing the greenhouse-gas emissions that contribute to climate change. Right now only two other CCS power-plant projects are under construction, both of them in the United States. That's because CCS carries a hefty price tag: SaskPower invested $1 billion to equip one of the four generators at its Boundary Dam site for carbon capture. What's more, the process reduces the 160-megawatt plant's electricity output by about 20 percent, meaning it may cost SaskPower more per kilowatt-hour to run CCS than the 12 cents it gets for selling the electricity. CCS should get cheaper over time. The Intergovernmental Panel on Climate Change, the panel of climate scientists convened by the United Nations, projects that technology upgrades and economies of scale should reduce the price of adding CCS to coal plants to just one-third of what SaskPower spent at Boundary Dam. If so, CCS-equipped coal plants could deliver electricity more cheaply than some other low-carbon sources, including offshore wind power and large solar farms.

Energy Efficient Building Technologies Market To Reach $623 Billion by 2023
[Energy Manager Today, Dec. 12] The market for energy efficient building technologies today is $307.3 billion and is expected to grow to $623 billion by 2023. A new report from Navigant Research analyzes the global market for commercial building energy efficient products and services, including global market forecasts for revenue through 2023. The building industry is on a long-term path toward improved levels of energy efficiency. Building owners are increasingly implementing corporate sustainability initiatives focused on energy efficiency—something that would have seemed costly or unnecessary 5 to 10 years ago. With few exceptions, governments are introducing policies aimed at promoting energy efficiency through incentives, prescriptive measures, building codes and other means. In addition, utilities continue to embrace energy efficiency as a way to manage strained grid infrastructure by reducing the amount of energy their customers consume. The barriers to broad adoption of energy efficiency measures center around cost, the report says. In many countries, energy costs remain less than $0.10/kWh for commercial customers, rendering the paybacks of many energy efficiency measures difficult to justify within stringent investment criteria. Outside of developed economies, energy efficiency tends to be low on the priorities list, even with significant new construction activity in areas such as Southeast Asia, Latin America and the Middle East. The report, Energy Efficient Buildings: Global Outlook, says the largest energy efficient building market segment is currently building envelope technologies, including building materials. However, mechanical and electrical systems such as HVAC, lighting and controls represent major segments as well.

LEGISLATION AND REGULATION

Commercial Clothes Washers To Be More Energy Efficient
[[Energy Manager Today, Dec. 9] The Department of Energy issued a pre-publication Federal Register final rule concerning energy conservation standards for commercial clothes washers. A fact sheet by the Natural Resources Defense Council – Strong US Energy Efficiency Standards: Decades of Using Energy Smarter – says energy efficiency standards for appliances and equipment have resulted in about 7 percent lower US electricity use in 2010 than would have been otherwise; this number is projected to grow to 14 percent by 2035. Total net savings from existing appliance and equipment standards will exceed $1 trillion by 2035.

North American Energy Leaders Agree to Data Exchanges
[The Hill, Dec. 15] The top energy officials in the United States, Canada and Mexico met Monday to agree to new measures to share and better integrate data on North America's energy. It was the first time the countries' energy leaders met in seven years, and they pledged to continue meeting on the issues important to each nation. "We had a really, really productive meeting," United States Energy Secretary Ernest Moniz told reporters after the meeting. Speaking of the data integration effort, Moniz said, "we have discovered that our data are not always consistent or available to all of us." The new cooperation efforts include ensuring that energy infrastructure maps agree with one another, sharing publicly available data about energy and better coordinating information and efforts about human resources development in energy industries.

NREL Seeks To Determine Equation for Solar Market Success
[Energy Manager Today, Dec. 15] While no standard formula exists to determine why solar market policies in certain states are more successful than others, a combination of foundational

policies and localized strategies can increase solar PV installations in any state, according to a new report from the DOE's National Renewable Energy Laboratory (NREL). The report, The Effect of State Policy Suites on the Development of Solar Markets, examines a variety of policy- and non-policy-based factors that influenced state and local solar markets. On the policy side, two factors strengthen a state's solar market in all contexts: interconnection, or policies that define the procedural requirements for connecting a PV system to the electricity grid; and net metering, or policies that enable the utility to compensate individual PV system owners though a simple billing mechanism. Non-policy issues that have implications for a solar market, such as the amount of sunlight available for potential solar generation, community interest in renewable energy and the cost of competing grid electricity, were examined in the context of different states and local communities.

Senators Push for More Distributed Wind Power Funding

[The Hill, Dec. 12] A bipartisan group of senators is asking the Energy Department to allocate more funding for small wind energy applications. The senators, led by Sen. Al Franken (D-Minn.) told the Energy Department to dedicate more of its funds through its renewable energy technology program to distributed wind power, in which turbines are located near power users and not in large farms. "We believe distributed wind power systems deserve sustained, and increased support," the senators wrote. "Distributed wind power systems, spanning a wide variety of applications across communities, businesses, and farms and ranches nationwide, clearly have the potential to contribute many gigawatts of electricity similar to other renewable technologies," they said. Distributed wind energy has about 842 megawatts of capacity as of last year, about 1.3 percent of the total wind energy capacity in the United States, according to the Energy Department.

WESTERN POWER

Center for Sustainable Energy Releases Solar Permitting Guidebook Offering Local Governments Strategies for Streamlining Home Installations

Designed to help California local jurisdictions fulfill recent Solar Permitting Efficiency Act

[Business Wire, Dec. 15] SAN DIEGO – A new guidebook outlining ways for California cities and counties to make permit processing and inspections for home rooftop solar electric systems quicker and more uniform is now available from the Center for Sustainable Energy (CSE). Increasing solar energy adoption is a key component for many local jurisdictions in achieving goals for energy efficiency, greenhouse gas reductions and climate action plans. The *California Solar Permitting Guidebook* addresses the requirements of the Solar Permitting Efficiency Act (formerly Assembly Bill 2188) signed into law by Governor Jerry Brown in September that requires the state's more than 540 cities and counties to adopt streamlined solar permitting processes by Sept. 30, 2015. The intention of the act is to help drive down rooftop solar installation costs for homeowners while increasing opportunities for solar businesses and reducing the workload of permitting agencies. California is the first state to mandate standardized solar permitting processes. Presently California cities and counties have a patchwork of unnecessarily complicated permitting and inspection regulations for small residential solar projects that slow down and add expense to solar installations, discouraging consumers and solar contractors alike, according to Tamara Gishri-Perry, a CSE senior project manager.

Colorado PUC Rejects Xcel Solar Connect Plan Over Competition Concerns

[Denver Post, Dec. 8] Xcel Energy's bid to create a premium solar energy program — potentially in competition with solar installers — was rejected Monday by the Colorado Public Utilities Commission. Under the proposed Solar Connect program, customers would pay Xcel, the state's largest electricity provider, a premium on their bills to support solar projects. The company said this would enable those who can't have solar panels on their roofs to support solar energy. "We are disappointed with the commission's decision today," the company said in a statement. "We thought that Solar Connect could bring a solar product to consumers in Colorado that do not currently have the option to install solar panels." In a filing, the PUC staff recommended rejecting the program, saying Solar Connect would "have an unfair competitive advantage" over home rooftop solar and community solar garden programs.

Los Angeles Proposes Sweeping Upgrades for Quakes

[Associated Press, Dec. 8] LOS ANGELES — Mayor Eric Garcetti on Monday proposed spending billions of dollars to better protect Los Angeles against a devastating earthquake by strengthening thousands of vulnerable older buildings and fortifying the city's water and communications systems. The sweeping plan left unclear what the final cost would be and, in some cases, who would get the bill. A 126-page report released by the mayor recommends a host of seismic safeguards, including building a solar-powered Wi-Fi network that could keep

people in touch in an emergency and developing alternative water sources for firefighters, including seawater and swimming pools. "We cannot afford to be complacent," the mayor said at City Hall, referring to the risk that another major earthquake could hit fault-laced Southern California. A 1994 quake in the city's Northridge neighborhood killed at least 57 people and caused $25 billion in damage. "All of us are at risk," he said.

ARIZONA STATE INCENTIVES/POLICIES

ARIZONA COMMERCE AUTHORITY (ACA)

INCENTIVES

Arizona has lowered taxes, streamlined regulations, and established a suite of incentives to support corporate growth and expansion. The Arizona Competitiveness Package, groundbreaking legislation adopted in 2011, makes it easier for existing Arizona companies to prosper and establishes Arizona as one of the most desirable places for expanding companies to do business. Give your company a competitive edge by utilizing Arizona's incentives.

- Job Training
- Quality Jobs
- Qualified Facility
- Computer Data Center Program
- Research & Development
- Foreign Trade Zone
- Military Reuse Zone
- Angel Investment
- Renewable Energy Tax Incentive
- Healthy Forest
- Sales Tax Exemption for Machinery and Equipment
- Lease Excise
- Additional Depreciation
- Work Opportunity
- Commercial/Industrial Solar
- SBIR/STTR
- Private Activity Bonds
- QECB's

(ACA) PROGRAMS

DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (DSIRE)

- Arizona Incentives/Policies
- Federal Incentives/Policies
- Solar Policy News

DSIRE provides summaries of current solar policy developments and an archive of past solar policy developments. Current solar news appears below the news archive, which is searchable by several criteria.

GRANTS

The following solicitations are now available:
(Click on title to view solicitation)

- DUE SOON! Jobs Plus Pilot Program - This Notice of Funding Availability (NOFA) announces the availability of funding of approximately $24 million for the Jobs Plus Pilot program for Public Housing Agencies (PHAs) to develop locally-based approaches to increase earnings and advance employment outcomes for Public Housing residents. The NOFA will fund initiatives to improve employment and earnings outcomes for Public Housing residents through supports such as work readiness, employer linkages, job placement and financial literacy. Of the $24 million available, $9 million is made

available from the ROSS appropriations to support the services element of the Jobs-Plus Pilot program. Funding Opportunity Number: FR-5800-N-24 Deadline Date: December 17, 2014

- DUE SOON! Brownfields Assessment and Cleanup (EPA-OSWER-OBLR-14-07) – Applications due December 19, 2014
- Accelerating Industry-Led Regional Partnerships for Talent Development (EDAREGIONALTALENT2014) – Applications due January 9, 2015
- Buildings Energy Efficiency Frontier & Innovation Technologies (BENEFIT) - 2015 Close Date: 01/12/2015 Funding Number: DE-FOA-0001166
- Landscape Design for Sustainable Bioenergy Systems Department of Energy Close Date: 01/12/2015
- WaterSMART: Water and Energy Efficiency Grants for FY 2015 Funding Opportunity #:R15AS00002 Close Date: 01/14/2015
- Solid-State Lighting Advanced Technology Research and Development 2015 Close Date: 01/15/2015
- Community-Scale Air Toxics Ambient Monitoring (EPA-OAR-OAQPS-15-01) - Applications due January 5, 2015
- Advancing Solutions to Improve the Energy Efficiency of U.S. Commercial Buildings Close Date: 01/20/2015
- Wood Innovations Close Date: 1/23/2015
- Buildings University Innovators & Leaders Development (BUILD) – 2015 Funding Opportunity #:DE-FOA-0001167 Concept Papers due December 19, 2014 Close Date: 1/28/2015
- Building America Industry Partnerships for High Performance Housing Innovation Funding Opportunity #:DE-FOA-0001117 Close Date: 02/04/2015
- Choice Neighborhoods Implementation Grant Program (FR-5800-N-11) – Applications due February 9, 2015
- Powering Agriculture: An Energy Grand Challenge for Development (AID-SOL-OOA-00005) – Applications accepted between December 8, 2014 through February 12, 2015
- Sustainable and Holistic Integration of Energy Storage and Solar PV (SHINES) Close Date: 3/19/15
- Repowering Assistance Program - Ongoing
- Rural Business Enterprise Grants - Ongoing
- Rural Business Opportunity Grants - Ongoing
- Sustainable Agriculture Research and Education Grants - Ongoing
- Renewable Energy RFP's - Solicitations for Renewable Energy Generation, Renewable Energy Certificates, and Green Power – Various Deadlines
- U.S. Dept. of Agriculture - Rural Development Grant Assistance
- Green Refinance Plus – Ongoing
- National Science Foundation Funding Opportunities